

CLAIMS

What is claimed is:

1. A grooving tool for forming a groove in a sidewall of a pipe circumferentially around said pipe, said grooving tool being capable of engaging a power drive unit for power operation thereof and a hand crank for manual operation, said grooving tool comprising:

a housing;

a grooving roller mounted on said housing and rotatable about a first axis, said grooving roller having a raised circumferential surface portion engageable with said sidewall for forming said groove;

a back-up roller mounted on said housing adjacent to said grooving roller, said back-up roller being rotatable about a second axis, one of said grooving roller and said back-up roller being movable toward and away from the other of said rollers for positioning said sidewall between said rollers and forcibly engaging said rollers with said sidewall on opposite sides of said sidewall;

a first shaft attached to one of said grooving and back-up rollers, said first shaft being engageable with said power drive unit, rotation of said power drive unit causing said first shaft and said one roller to rotate;

a second shaft rotatably mounted on said housing, said second shaft being engageable with said hand crank; and

a transmission mounted on said housing, said transmission extending between said first and said second shafts such that rotation of said second shaft causes rotation of said first shaft thereby rotating

said one roller, rotation of said one roller by one of said power drive unit and said hand crank causing relative rotation between said pipe and said rollers for forming said groove.

2. A grooving tool according to Claim 1, wherein said second axis is substantially parallel to said first axis.

3. A grooving tool according to Claim 1, wherein said first shaft is attached to said back-up roller, said first shaft being substantially coaxially aligned with and rotatable about said second axis.

4. A grooving tool according to Claim 3, wherein said back-up roller has a textured circumferential surface for engaging an inner surface of said sidewall.

5. A grooving tool according to Claim 1, wherein said transmission comprises:

a gear attached to said first shaft and positioned coaxial therewith; and

a pinion attached to said second shaft and positioned coaxial therewith, said pinion engaging said gear, said pinion transmitting rotational motion of said second shaft to said first shaft.

6. A grooving tool according to Claim 5, wherein said gear has a pitch diameter between about 3 and about 8 times greater than said pinion.

7. A grooving tool according to Claim 3, further comprising:

a secondary housing pivotably mounted on said housing, said grooving roller being rotatably mounted on said secondary housing, said grooving roller being pivotably movable toward and away from said back-up roller upon pivoting motion of said secondary housing; and

means for forcibly pivoting said secondary housing relatively to said housing, said sidewall being positionable between said grooving and said back-up rollers, said rollers being forcibly engageable with said sidewall upon pivoting motion of said grooving roller toward said back-up roller by said pivoting means.

8. A grooving tool according to Claim 7, wherein said pivoting means comprises a jackscrew assembly having a first end engaged with said housing and a second end engaged with said secondary housing, rotation of said jackscrew assembly pivotally moving said secondary housing relatively to said housing.

9. A grooving tool according to Claim 1, further comprising an anti-torque arm mounted on said housing, said anti-torque arm being engageable with said power drive unit and preventing said housing from turning when said first shaft is rotated.

10. A grooving tool according to Claim 9, wherein said anti-torque arm is removably mounted on said housing.

11. A grooving tool according to Claim 1, further comprising an elongated extension shaft having a first end engageable with said power drive unit and a second

end engageable with said first shaft, said extension shaft permitting engagement of said power drive unit to said first shaft with said grooving tool in spaced apart relation to said power drive unit.

12. A grooving tool for forming a groove in a sidewall of a pipe circumferentially around said pipe, said grooving tool being capable of both power and manual operation, said grooving tool comprising:

a power drive unit;

a housing removably mounted on said power drive unit;

a grooving roller mounted on said housing and rotatable about a first axis, said grooving roller having a raised circumferential surface portion engageable with said sidewall for forming said groove;

a back-up roller mounted on said housing adjacent to said grooving roller, said back-up roller being rotatable about a second axis, one of said grooving roller and said back-up roller being movable toward and away from the other of said rollers for positioning said sidewall between said rollers and forcibly engaging said rollers with said sidewall on opposite sides of said sidewall;

a first shaft attached to one of said grooving and back-up rollers, said first shaft being removably engaged with said power drive unit, rotation of said power drive unit causing said first shaft and said one roller to rotate;

a second shaft rotatably mounted on said housing;

a hand crank removably engageable with said second shaft for manual rotation thereof;

a transmission mounted on said housing, said transmission extending between said first and said second shafts such that rotation of said second shaft causes rotation of said first shaft thereby rotating said one roller;

wherein rotation of said one roller by said power drive unit when said housing is mounted thereon causes relative rotation between said pipe and said rollers for forming said groove; and

wherein rotation of said one roller by said hand crank when said housing is removed from said power drive unit causes relative rotation between said pipe and said rollers for forming said groove.

13. A grooving tool according to Claim 12, wherein said second axis is substantially parallel to said first axis.

14. A grooving tool according to Claim 12, wherein said first shaft is attached to said back-up roller, said first shaft being substantially coaxially aligned with and rotatable about said second axis.

15. A grooving tool according to Claim 14, wherein said back-up roller has a textured circumferential surface for engaging an inner surface of said sidewall.

16. A grooving tool according to Claim 12, wherein said transmission comprises:

a gear attached to said first shaft and positioned coaxial therewith; and

a pinion attached to said second shaft and positioned coaxial therewith, said pinion engaging said

gear, said pinion transmitting rotational motion of said second shaft to said first shaft.

17. A grooving tool according to Claim 16, wherein said gear has a pitch diameter between about 3 and about 8 times greater than said pinion.

18. A grooving tool according to Claim 14, further comprising:

a secondary housing pivotably mounted on said housing, said grooving roller being rotatably mounted on said secondary housing, said grooving roller being pivotably movable toward and away from said back-up roller upon pivoting motion of said secondary housing; and

means for forcibly pivoting said secondary housing relatively to said housing, said sidewall being positionable between said grooving and said back-up rollers, said rollers being forcibly engageable with said sidewall upon pivoting motion of said grooving roller toward said back-up roller by said pivoting means.

19. A grooving tool according to Claim 18, wherein said pivoting means comprises a jackscrew assembly having a first end engaged with said housing and a second end engaged with said secondary housing, rotation of said jackscrew assembly pivotally moving said secondary housing relatively to said housing.

20. A grooving tool according to Claim 12, further comprising an anti-torque arm mounted on said housing, said anti-torque arm being engageable with

said power drive unit and preventing said housing from turning when said first shaft is rotated.

21. A grooving tool according to Claim 20, wherein said anti-torque arm is removably mounted on said housing.

22. A grooving tool according to Claim 12, further comprising an elongated extension shaft having a first end engageable with said power drive unit and a second end engageable with said first shaft, said extension shaft permitting engagement of said power drive unit to said first shaft with said grooving tool in spaced apart relation to said power drive unit.